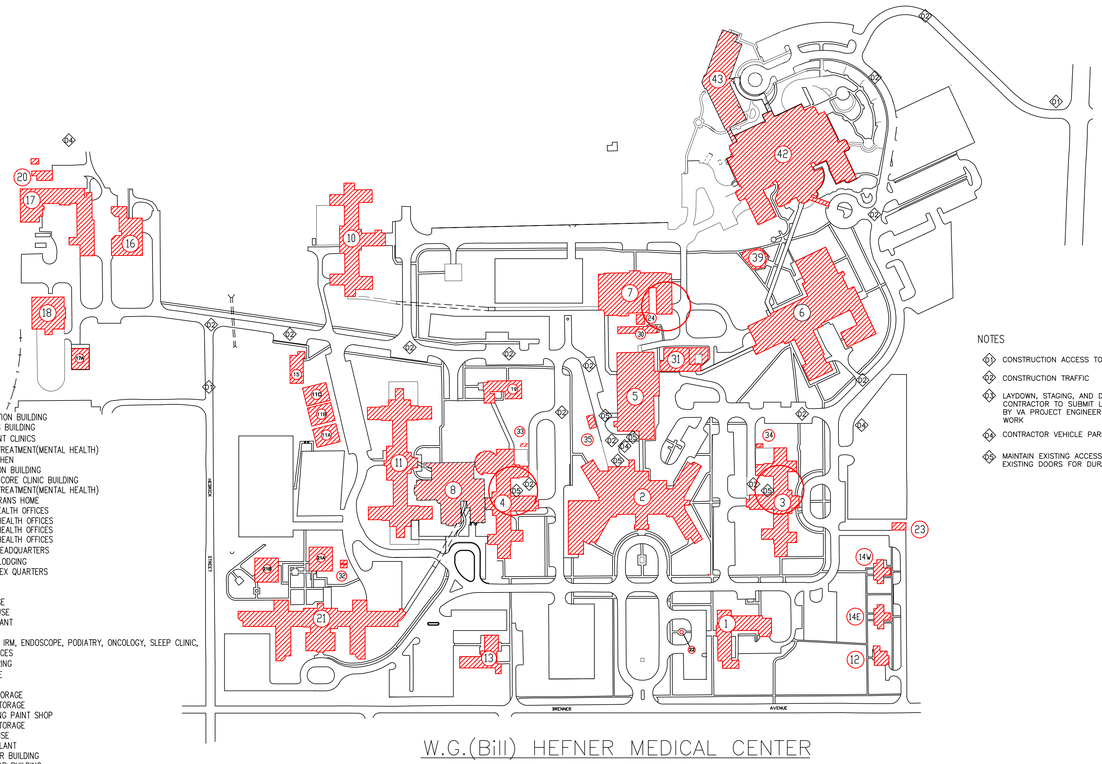
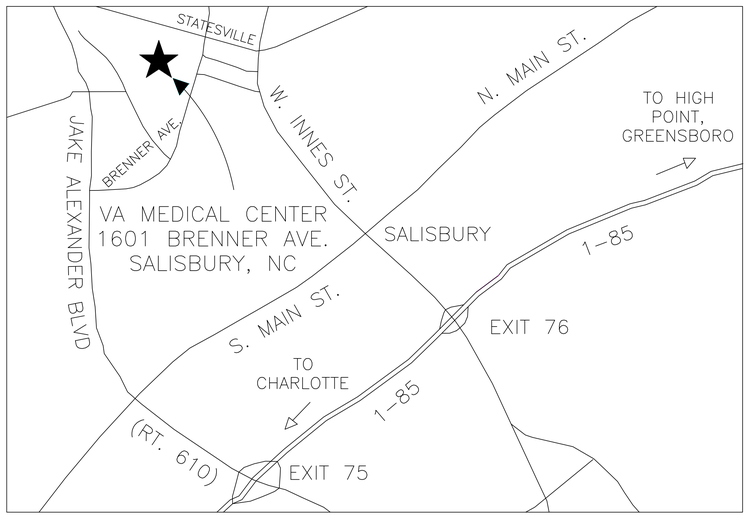
DEPARTMENT OF VETERANS AFFAIRS
REPLACE WATER HEATERS BUILDINGS 3, 4, AND 7.



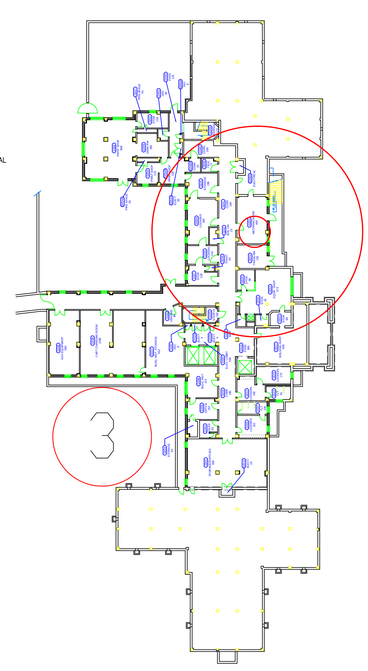
BUILDINGS
1. ADMINSTATION BUILDING
2. G. M. & S BUILDING
3. OUTPATIENT CLINICS
4. PATIENT TREATMENT(MENTAL HEALTH)
5. MAIN KITCHEN
6. RECREATION BUILDING
7. R.M.S & CORE CLINIC BUILDING
8. PATIENT TREATMENT(MENTAL HEALTH)
10. N.C. VETERANS HOME
11. MENTAL HEALTH OFFICES
11A. MENTAL HEALTH OFFICES
11B. MENTAL HEALTH OFFICES
11C. MENTAL HEALTH OFFICES
12. POLICE HEADQUARTERS
13. STUDENT LODGING
14. E&W DUPLEX QUARTERS
15. VISN
16. LAUNDRY
17. WAREHOUSE
17A. WAREHOUSE
18. BOILER PLANT
19. CHAPEL
21. LOGISTICS, IRM, ENDOSCOPE, PODIATRY, ONCOLOGY, SLEEP CLINIC,
21A. FEE BASICES
21B. ENGINEERING
22. FLAG POLE
23. GARAGES
24. R.M.&S STORAGE
25. R.M.&S. STORAGE
28. ENGINEERRNG PAINT SHOP
29. R.M.&S. STORAGE
30. GREENHOUSE
31. CHILLER PLANT
32. GENERATOR BUILDING
33. SWITCHGEAR BUILDING
34. GENERATOR BUILDING
35. GENERATOR BUILDING
36. GENERATOR BUILDING
37. GENERATOR BUILDING
38. GENERATOR BUILDING
39. PICNIC SHELTER
40. GROUNDS STORAGE SHELTER
41. NCA SHELTER
42. GEROPSYCHIATRIC BUILDING
43. HOSPICES BUILDING

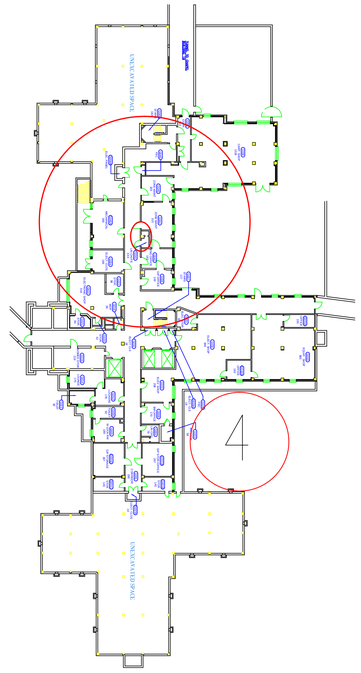
W.G.(Bill) HEFNER MEDICAL CENTER
SALISBURY, NORTH CAROLINA



NOTES

1. CONSTRUCTION ACCESS TO CAMPUS
2. CONSTRUCTION TRAFFIC
3. LAYDOWN, STAGING, AND DUMPSTER AREA – CONTRACTOR TO SUBMIT LAYDOWN PLAN FOR APPROVAL BY VA PROJECT ENGINEER PRIOR TO START OF ANY WORK
4. CONTRACTOR VEHICLE PARKING
5. MAINTAIN EXISTING ACCESS TO AND EGRESS FROM EXISTING DOORS FOR DURATION OF PROJECT.





Statement of Work

The contractor shall remove and dispose/recycle of old hot water generator and pumps and replace with modern steam fired instantaneous hot water generators and pumps in building 3, building 4, and building 7. The contractor shall remove tank mounts pipe supports and any forms and material related to the mounting of related equipment. The contractor shall install steam fired instantaneous water heater and new pumps and all supporting control equipment.

All water heaters shall be electrical digital controlled and stand alone. The contractor shall replace all controls to pumps with new disconnects and starters. Each piece of electrical equipment shall have its own controls and disconnects. the controls for building 3 and 7 shall have an electrical timer that shall turn off the circulating pumps from 6 pm (1800) until 5 am (0500). Systems are subject to power outages and must be set up to return to operation without any manual reset.

All piping shall be insulated as they relate to the system to which the piping is connected. The piping shall be insulated from cold water connection to where the pipe leaves the mechanical room. All piping shall be ran in a neat organized manner and workman like fashion. All equipment shall have valves that isolate equipment in case of failure. Valves shall be tagged and labeled. Valves shall be rated for temperatures, pressures and physical characteristics of the system that it serves.

These Drawings are based off of Armstrong Hot Water Group, of Three Rivers, Michigan. equipment. equivalent or more efficient unit will be taken into consideration.

Revision	Date

RECOMMEND APPROVAL

REQUESTER	Date		
CHIEF OF SERVICE	Date	CHIEF OF STAFF	Date
ASSOC. DIR. PATIENT CARE SVC.	Date	ASSOC. DIR. for OPERATIONS	Date
APPROVAL BY: MEDICAL CENTER DIRECTOR			Date

Drawing Title: COVER PAGE

Approved: Safety Manager/M&O Supervisor

Approved:Chief of Facilities Management Svr.

Project Title: REPLACE HOT WATER GENERATORS IN BUILDINGS 3,4,AND 7

Building Number: 3,4,&7 | Checked | Drawn: NEJ

Location: W.G.(Bill) Hefner Medical Center, 1601 Brenner Ave., Salisbury NC 28144

Date: 30 Oct 2012

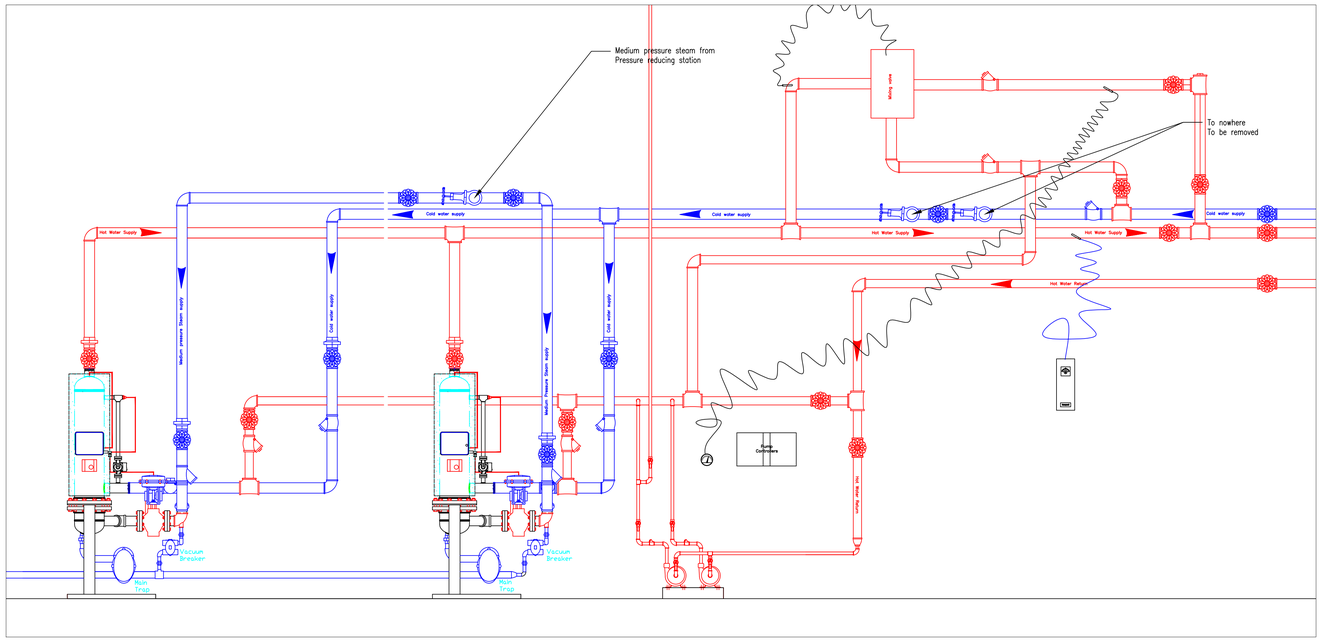
Project No.: 659-13-201

DRAWING NO.: G-000

DWG. 1 OF 4

Office of Facilities

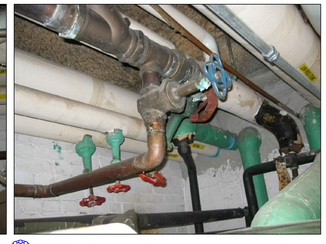
Department of Veterans Affairs

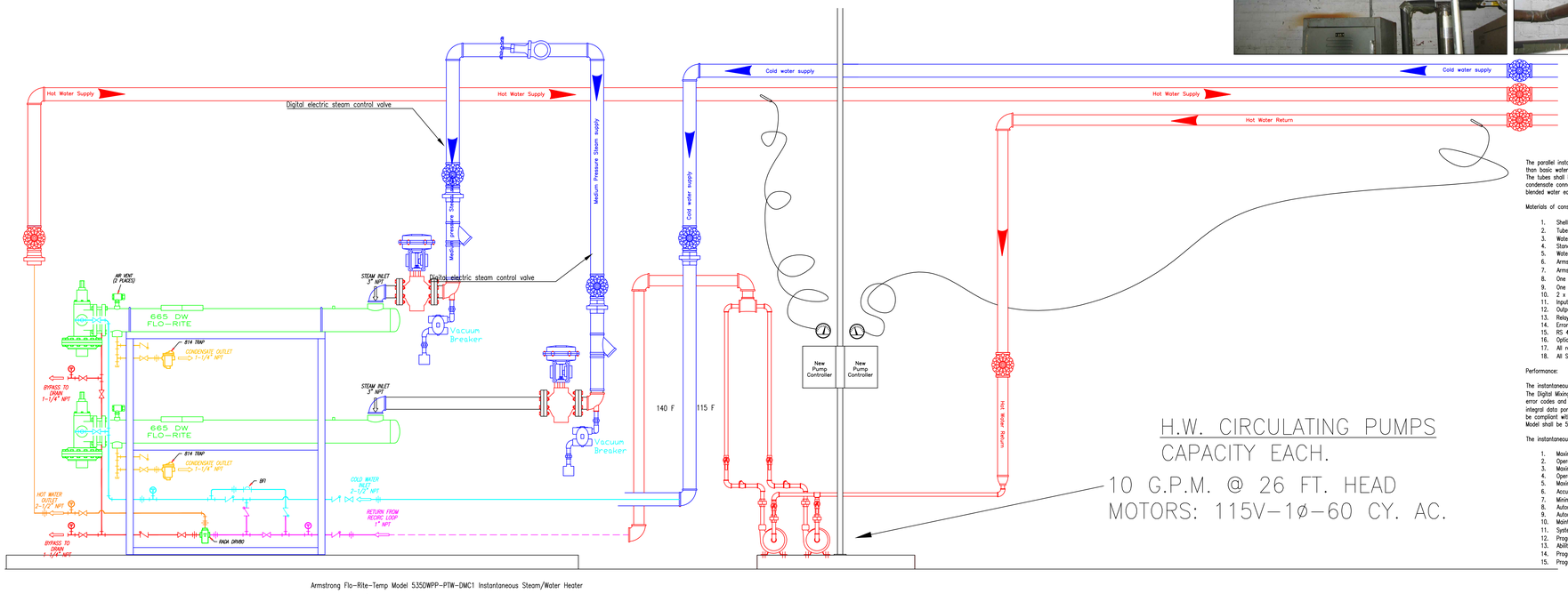


This is the current situation in Building 3 the unit is currently operating sporadically The building has been down sized for what the current water heaters are able to produce.

The Contractor shall remove the existing Water Heaters and piping to system Isolation valves. The contractor shall remove any existing mechanical pads and repair the floor for new 4 " mechanical pads. all equipment shall be mounted on floor pads. The water heater shall be capable to heat 40 degree water to 120 Degree using 15 lb. of steam making 45 gallons per. minuet. The water heater shall come as a package unit with a Digital circulating valve the contractor shall install 110 VAC power for controls on the unit. the circulating pumps shall be on their own controls that are on a timer and will reset when power is lost and re energized. The timer will securer the circulating pumps from 6pm (18:00) to 5 am (05:00) daily. the time shall not be effected by power outages.

NO plastic pipe shall be used in drains from relief valves or any other drains from the system.





H.W. CIRCULATING PUMPS
CAPACITY EACH.
10 G.P.M. @ 26 FT. HEAD
MOTORS: 115V-1ø-60 CY. AC.

Armstrong Flo-Rite-Temp Model 535DWPP-PTW-DMC1 Instantaneous Steam/Water Heater
pre-piped parallel/redundant tempered water packaged assembly designed for a Recirculating Hot Water Systems.

WATER HEATER SPECIFICATIONS

The parallel instantaneous water heater package with DMC1 shall be mounted on an angle iron frame. The package shall be pre-plumbed with all required components and pressure tested. Packages which require field assembly other than basic water, and steam service shall be unacceptable. The instantaneous water heater shall operate on water differential using the feed forward principle and shall not use a feedback temperature control device with capillary system. The tubes shall be double wall with a U-bend. Helical tubes shall be unacceptable. The water controlling valve shall be mounted integral to the heat exchanger without the use of connecting piping. Only the necessary steam, water and condensate connections to the instantaneous water heater shall be pre-plumbed. Copper lined storage tanks shall not be used. Temperature controller shall be controlled digitally via integrated circuit board technology designed to deliver blended water economically at a safe, accurate temperature for sanitary use in re-circulated hot water systems.

Materials of construction and items included shall be:

1. Shells of carbon steel with 2-1/2" NPT steam inlet and 1" NPT condensate exit ports
2. Tubes of 5/8" copper inner, ¼" ID grooved copper outer expanded into steel (steam side) and brass (water side) tube sheets
3. Water control valve body of bronze with brass internals and having 1-1/2" NPT water connections
4. Stand of 2" Carbon Steel Angle
5. Water pipe of Type L copper
6. Armstrong Steam Trap model 813 or equivalent
7. Armstrong Thermostatic Air Vent or equivalent
8. One 12V Digital Recirculating Valve (DRV80) or equivalent
9. One UL Listed Power supply's rated at 100-240V (12V AC ouput)
10. 2 x 4-20 mA current loop interfaces:
11. Input: Setpoint Selection
12. Output: Measured Blend Temperature
13. Relay output: 24V DC/240V AC SPCO
14. Error Relay: Activated in alarm or error mode
15. RS 485 Serial Data Connection Port
16. Optional External Network Adapter
17. All required valve fittings and isolation valves, pressure gauges, inlet combination ball valve strainers, inlet/return check valves, inlet, system blend and return line thermometers
18. All Stainless Steel Construction (DRV80 only)

Performance:

The instantaneous water heater shall be of the horizontal shell and tube design providing easy access to the individual tubes without moving the heater from its installed position. No overhead clearance shall be required for servicing. The Digital Mixing Center (DMC) shall deliver up to 150 gpm with no minimum system draw-off requirement. The DMC shall have a 2 line, 16 character display of delivered temperature with the option of °F or °C. Display also shows the error codes and alarm conditions. Setpoint configuration, unit selection, and alarm conditions available via the IrDA programming port used with the programming software or via the Building Automation System. The DRV80 shall have an integral data port for the 4-20 mA interfaces. The DRV80 shall also include an integral serial data (RS485) connection port for a multitude of Building Automation Interface as well as Internet connectivity. The temperature controller shall be compliant with ASSE Standard 1017 and CSA B125 and so certified and identified. The temperature controller shall be compliant with ASSE Standard 1017 and CSA B125 and so certified and identified. This drawing is based off of a Model shall be 535DWPP-PTW by Armstrong Hot Water Group, Three Rivers, Michigan.

The instantaneous water heater package with DMC1 shall include all of the following capabilities:

1. Maximum water pressure drop not exceeding 10 psi in the instantaneous heater
2. Operational steam pressure of 2-15 psig
3. Maximum allowable steam pressure of 150 psig
4. Operational water pressure of 20-150 psig
5. Maximum allowable water pressure of 150 psig
6. Accurate control of blended water drawn from the system at a point of use typically within +/-2°F at draw off points a minimum of 5m downstream of mixing valve during consistent system demand periods
7. Minimum valve inlet to outlet temperature requirement (system recirculation temperature loss) of 2°F
8. Automatic shutoff of hot water flow upon cold water inlet supply failure
9. Automatic shutoff of hot water flow in the event of a power failure
10. Maintain a consistent system 'idling' temperature and control 'temperature creep' without the use of a manual throttling device or balance valve.
11. System shall not require a temperature activated pump shut-off device (aquastat).
12. Programmable set point range of 100-160?F (37-71?C) plus full hot/full cold
13. Ability to thermally disinfect at recommended temperatures
14. Programmable 1st level hi/lo temp alarm display
15. Programmable 2nd level hi/lo temp alarm display/full cold

Revision	Date

RECOMMEND APPROVAL

REQUESTER	Date		
CHIEF OF SERVICE	Date	CHIEF OF STAFF	Date
ASSOC. DIR. PATIENT CARE SVC.	Date	ASSOC. DIR. for OPERATIONS	Date
APPROVAL BY: MEDICAL CENTER DIRECTOR			Date

Drawing Title: Building 3

Approved: Safety Manager/M&O Supervisor

Approved:Chief of Facilities Management Svr.

Project Title: REPLACE HOT WATER GENERATORS IN BUILDINGS 3,4,AND 7

Building Number: 3 | Checked | Drawn: NEJ

Location: W.G.(Bill) Hefner Medical Center, 1601 Brenner Ave, Salisbury NC 28144

Date: 30 OCT 2012

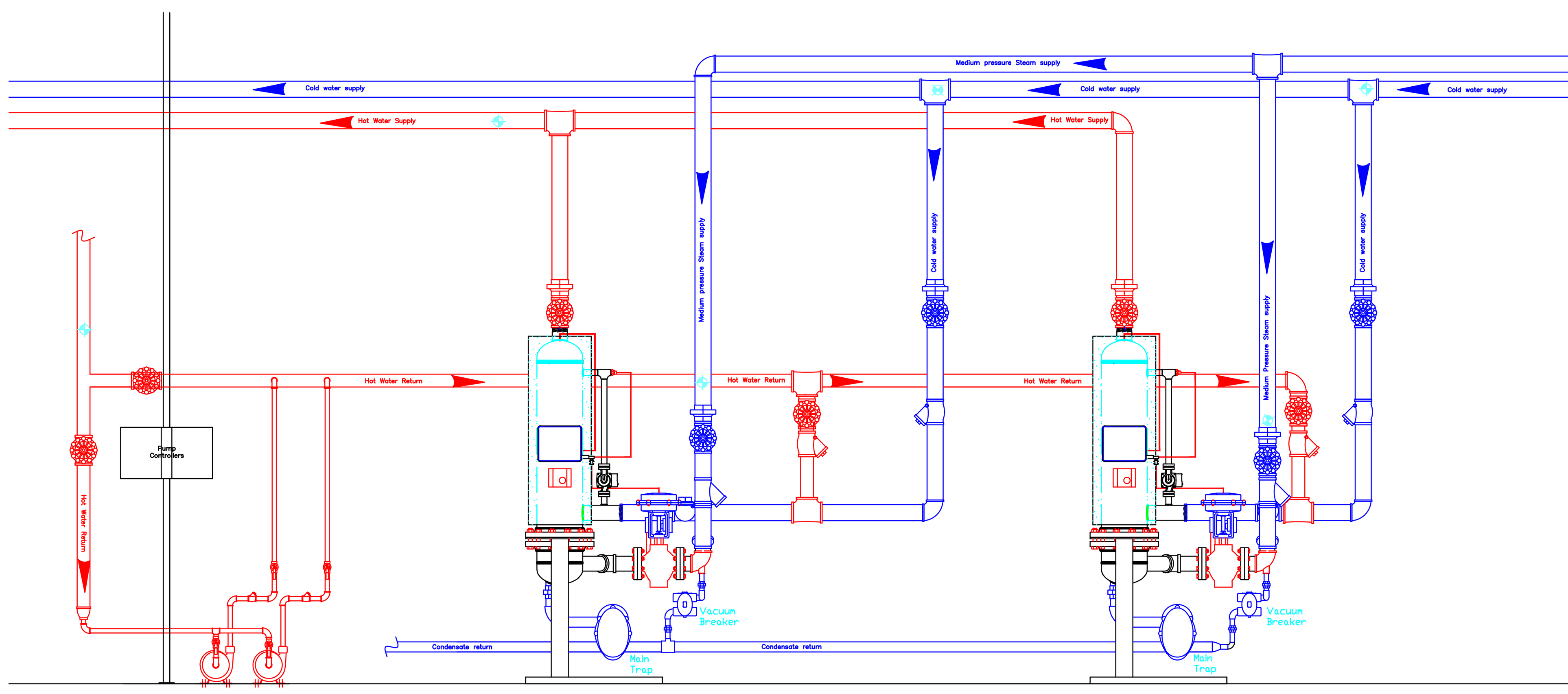
Project No.: 659-13-201

DRAWING NO.: M-001

DWG. 2 OF 4

Office of Facilities

Department of Veterans Affairs

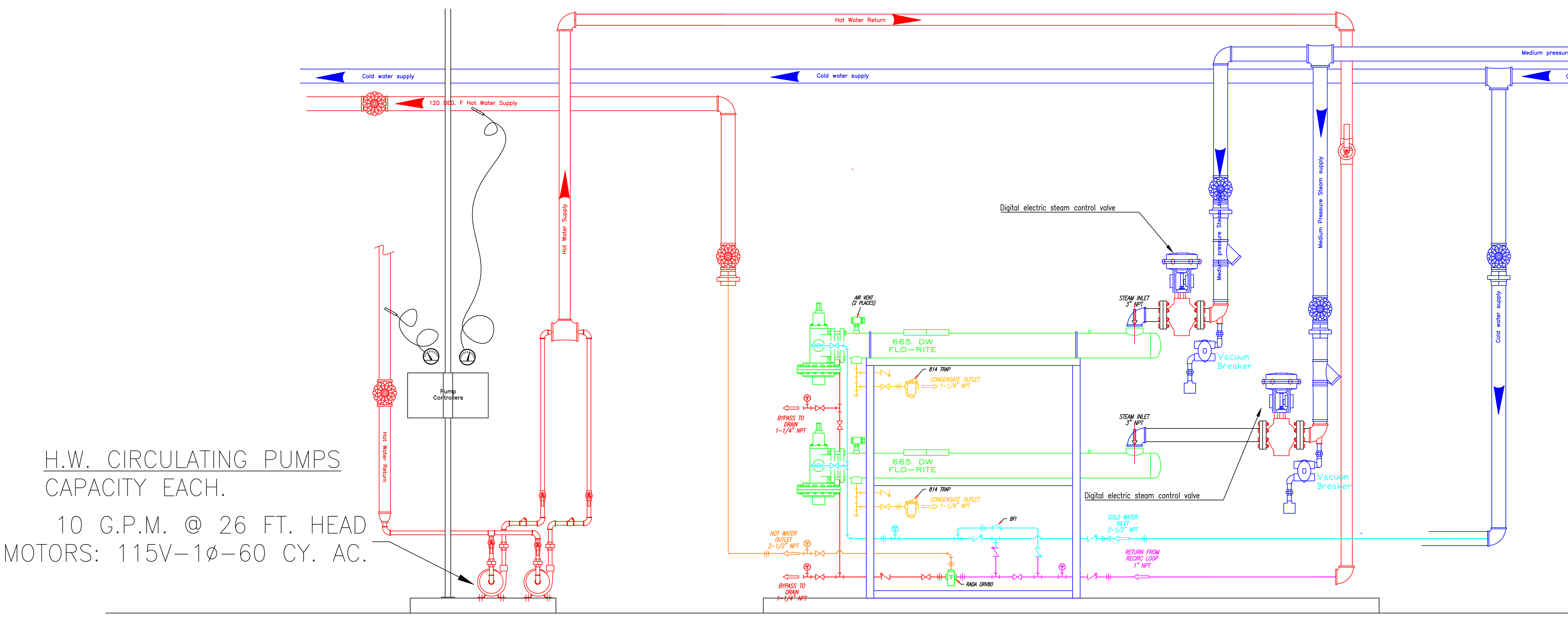


This is the current situation in Building 4 the unit is currently operating sporadically The building has been down sized for what the current water heaters are able to produce.

The Contractor shall remove the existing Water Heaters and piping to system Isolation valves. The contractor shall remove any existing mechanical pads and repair the floor for new mechanical pads (Min–4"). all equipment shall be mounted on floor pads.

The water heater shall be capable to heat 40 degree water to 120 Degree using 15 lb. of steam making 45 gallons per. minuet. The water heater shall come as a package unit with a Digital circulating valve the contractor shall install 110 VAC power for controls on the unit. the circulating pumps shall be on their own controls and will reset when power is lost and re energized.

NO plastic pipe shall be used in drains from relief valves or any other drains from the system.



Armstrong Flo–Rite–Temp Model 535DWPP–PTW–DMC1 Instantaneous Steam/Water Heater

pre–piped parallel/redundant tempered water packaged assembly designed for a Recirculating Hot Water Systems.

WATER HEATER SPECIFICATIONS

The parallel instantaneous water heater package with DMC1 shall be mounted on an angle iron frame. The package shall be pre–plumbed with all required components and pressure tested. Packages which require field assembly other than basic water, and steam service shall be unacceptable. The instantaneous water heater shall operate on water differential using the feed forward principle and shall not use a feedback temperature control device with capillary system. The tubes shall be double wall with a U–bend. Helical tubes shall be unacceptable. The water controlling valve shall be mounted integral to the heat exchanger without the use of connecting piping. Only the necessary steam, water and condensate connections to the instantaneous water heater shall be pre–plumbed. Copper lined storage tanks shall not be used. Temperature controller shall be controlled digitally via integrated circuit board technology designed to deliver blended water economically at a safe, accurate temperature for sanitary use in re–circulated hot water systems.

Materials of construction and items included shall be:

1. Shells of carbon steel with 2–1/2" NPT steam inlet and 1" NPT condensate exit ports
2. Tubes of 5/8" copper inner, ¾" ID grooved copper outer expanded into steel (steam side) and brass (water side) tube sheets
3. Water control valve body of bronze with brass internals and having 1–1/2" NPT water connections
4. Stand of 2" Carbon Steel Angle
5. Water pipe of Type L copper
6. Armstrong Steam Trap model 813 or equivalent
7. Armstrong Thermostatic Air Vent or equivalent
8. One 12V Digital Recirculating Valve (DRV80) or equivalent
9. One UL Listed Power supply's rated at 100–240V (12V AC ouput)
10. 2 x 4–20 mA current loop interfaces:
11. Input: Setpoint Selection
12. Output: Measured Blend Temperature
13. Relay output: 24V DC/240V AC SPCO
14. Error Relay: Activated in alarm or error mode
15. RS 485 Serial Data Connection Port
16. Optional External Network Adapter
17. All required valve fittings and isolation valves, pressure gauges, inlet combination ball valve strainers, inlet/return check valves, inlet, system blend and return line thermometers
18. All Stainless Steel Construction (DRV80 only)

Performance:

The instantaneous water heater shall be of the horizontal shell and tube design providing easy access to the individual tubes without moving the heater from its installed position. No overhead clearance shall be required for servicing. The Digital Mixing Center (DMC) shall deliver up to 150 gpm with no minimum system draw–off requirement. The DMC shall have a 2 line, 16 character display of delivered temperature with the option of °F or °C. Display also shows the error codes and alarm conditions. Setpoint configuration, unit selection, and alarm conditions available via the IrDA programming port used with the programming software or via the Building Automation System. The DRV80 shall have an integral data port for the 4–20 mA interfaces. The DRV80 shall also include an integral serial data (RS485) connection port for a multitude of Building Automation Interface as well as Internet connectivity. The temperature controller shall be compliant with ASSE Standard 1017 and CSA B125 and so certified and identified. The temperature controller shall be compliant with ASSE Standard 1017 and CSA B125 and so certified and identified. This drawing is based off of a Model shall be 535DWPP–PTW by Armstrong Hot Water Group, Three Rivers, Michigan.

The instantaneous water heater package with DMC1 shall include all of the following capabilities:

1. Maximum water pressure drop not exceeding 10 psi in the instantaneous heater
2. Operational steam pressure of 2–15 psig
3. Maximum allowable steam pressure of 150 psig
4. Operational water pressure of 20–150 psig
5. Maximum allowable water pressure of 150 psig
6. Accurate control of blended water drawn from the system at a point of use typically within +/–2°F at draw off points a minimum of 5m downstream of mixing valve during consistent system demand periods
7. Minimum valve inlet to outlet temperature requirement (system recirculation temperature loss) of 2°F
8. Automatic shutoff of hot water flow upon cold water inlet supply failure
9. Automatic shutoff of hot water flow in the event of a power failure
10. Maintain a consistent system "idling" temperature and control "temperature creep" without the use of a manual throttling device or balance valve.
11. System shall not require a temperature activated pump shut–off device (aquastat).
12. Programmable set point range of 100–160°F (37–71°C) plus full hot/full cold
13. Ability to thermally disinfect at recommended temperatures
14. Programmable 1st level hi/lo temp alarm display
15. Programmable 2nd level hi/lo temp alarm display/full cold

Revision	Date

RECOMMEND APPROVAL

REQUESTER	Date		
CHIEF OF SERVICE	Date	CHIEF OF STAFF	Date
ASSOC. DIR. PATIENT CARE SVC.	Date	ASSOC. DIR. for OPERATIONS	Date
APPROVAL BY: MEDICAL CENTER DIRECTOR			Date

Drawing Title: BUILDING 4	Project Title: REPLACE HOT WATER GENERATORS IN BUILDINGS 3, 4, AND 7		Date: 30 Oct 2012
Approved: Safety Manager/M&O Supervisor	Building Number: 4	Checked	Drawn: NEJ
Approved:Chief of Facilities Management Svr.	Location: W.G.(Bill) Hefner Medical Center, 1601 Brenner Ave., Salisbury NC 28144		

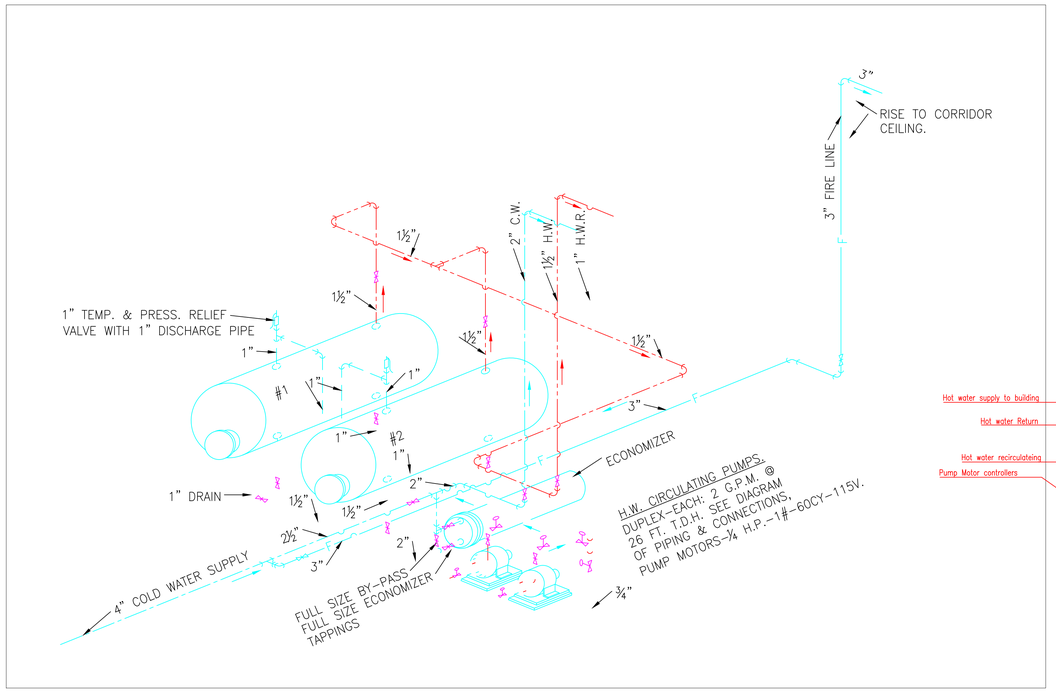
Project No. 659–13–201

DRAWING NO. M–002

DWG. 3 OF 4

Office of Facilities

Department of Veterans Affairs



This is the current situation in Building 7 the unit is currently operating sporadically The building has been down sized for what the current water heaters are able to produce.

The Contractor shall remove the existing Water Heaters and piping to system isolation valves. The contractor shall remove any existing mechanical pads and repair the floor for new mechanical pads (min-4"). all equipment shall be mounted on floor pads.

The water heater shall be capable to heat 40 degree water to 120 Degree using 15 lb. of steam making 20 gallons per minuet. The water heater shall come as a package unit with a Digital circulating valve the contractor shall install 110 VAC power for controls on the unit. the circulating pumps shall be on their own controls that are on a timer and will reset when power is lost and re energized. The timer will securer the circulating pumps from 6pm (18:00) to 5 am (05:00) daily. The time shall not be effected by power outages.

NO plastic pipe shall be used in drains from relief valves or any other drains from the system.

WATER HEATER SPECIFICATIONS

The instantaneous water heater package with EMC1 shall be mounted on an angle iron frame. The package shall be pre-plumbed with all required components and pressure tested. Packages which require field assembly other than basic water, and steam service shall be unacceptable. The instantaneous water heater shall operate on water differential using the feed forward principle and shall not use a feedback temperature control device with capillary system. The tubes shall be double wall with a U-bend. Helical tubes shall be unacceptable. The water controlling valve shall be mounted integral to the heat exchanger without the use of connecting piping. Only the necessary steam, water and condensate connections to the instantaneous water heater shall be pre-plumbed. Copper lined storage tanks shall not be used. Temperature controllers shall feature integrated circuit board technology designed to deliver blended water economically at a safe, accurate temperature for sanitary use in re-circulated hot water systems. Electronic control box shall be supplied pre-wired, terminating at a knockout for Romex or BX cable connector.

Materials of construction and items included shall be:

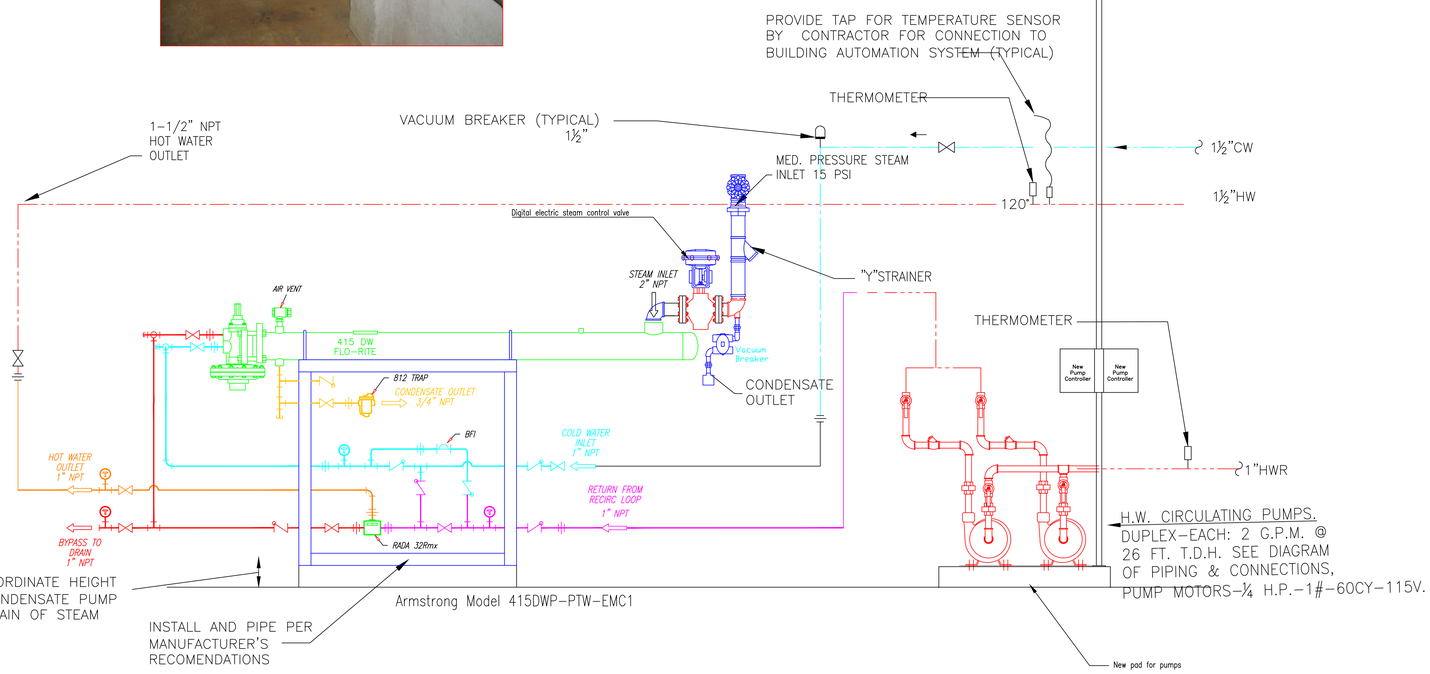
1. Shells of carbon steel with 2" NPT steam inlet and 3/4" NPT condensate exit ports
2. Tubes of 5/8" copper inner, ½" ID grooved copper outer expanded into steel (steam side) and brass (water side) tube sheets
3. Water control valve body of bronze with stainless steel internals and having 1" NPT water connections
4. Stand of 2" Carbon Steel Angle
5. Water pipe of Type L copper
6. Armstrong Steam Trap model 812 or equivalent
7. Armstrong Thermostatic Air Vent or equivalent
8. One 12V AC electronic temperature controller
9. One 110V AC UL Listed transformer enclosed in a NEMA 4X enclosure
10. Low voltage control wiring with protective conduit
11. All required valve fittings and isolation valves, pressure gauges, inlet combination ball valve strainers, inlet/return check valves, inlet, system blend and return line thermometers

Performance:

The instantaneous water heater shall be of the horizontal shell and tube design providing easy access to the individual tubes without moving the heater from its installed position. No overhead clearance shall be required for servicing. The Electronic Mixing Center (EMC) shall deliver up to 72 gpm with no minimum system draw-off requirement. The EMC shall have a visual operation "set" and "actual" temperature display for effective commissioning, adjustment and system monitoring and a visual signal by display to show "error" mode or "out of range" system failure, coupled with output for audible alarm and/or downstream solenoid valve relay. The temperature controller shall be compliant with ASSE Standard 1017 and CSA B125 and so certified and identified. this drawing is based off of a Model shall be 415DWP-PTW by Armstrong Hot Water Group, Three Rivers, Michigan.

The instantaneous water heater package with EMC1 shall include all of the following capabilities:

1. Maximum water pressure drop not exceeding 10 psi in the instantaneous heater
2. Maintain a consistent system "idling" temperature and control "temperature creep" without the use of a manual throttling device or balance valve.
3. Accurate control of blended water drawn from the system at a point of use within +/-2°F at draw off points a minimum of 5m downstream of mixing valve during consistent demand periods.
4. Operational steam pressure of 2-15 psig
5. Maximum allowable steam pressure of 150 psig
6. Operational water pressure of 20-150 psig
7. Maximum allowable water pressure of 150 psig
8. Minimum valve inlet to outlet temperature requirement (system recirculation temperature loss) of 2°F
9. Automatic shutoff of hot water flow upon cold water inlet supply failure
10. Automatic shutoff of hot water flow in the event of a power failure
11. System shall not require a temperature activated pump shut-off device (aquastat).



Revision	Date

RECOMMEND APPROVAL

REQUESTER	Date		
CHIEF OF SERVICE	Date	CHIEF OF STAFF	Date
ASSOC. DIR. PATIENT CARE SVC.	Date	ASSOC. DIR. for OPERATIONS	Date
APPROVAL BY: MEDICAL CENTER DIRECTOR			Date

Drawing Title: Building 7

Approved: Safety Manager/M&O Supervisor

Approved:Chief of Facilities Management Svr.

Project Title: REPLACE HOT WATER GENERATORS IN BUILDINGS 3,4,AND 7

Building Number: 7 | Checked | Drawn: NEJ

Location: W.G.(Bill) Hefner Medical Center, 1601 Brenner Ave., Salisbury NC 28144

Date: 30 OCT 2012

Project No.: 659-13-201

DRAWING NO. M-003

DWG. 4 OF 4

Office of Facilities

Department of Veterans Affairs